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Web-Based Retrieval System

- [XML Web Services](#)
- [Ad Hoc Query Interface](#)
- [Geographic Information Systems](#)
- [Tabular Datasets](#)
- [Offline Datasets](#)



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XML Web Services

- Allow Remote Users To Retrieve Datasets Locally
- Combine Multiple Data Sources Into A Single Dataset
- Link Data With Other Datasets That May, Or May Not, Be Directly Related To The PM Data
- Linked Data Remains Separate From Primary Data Store





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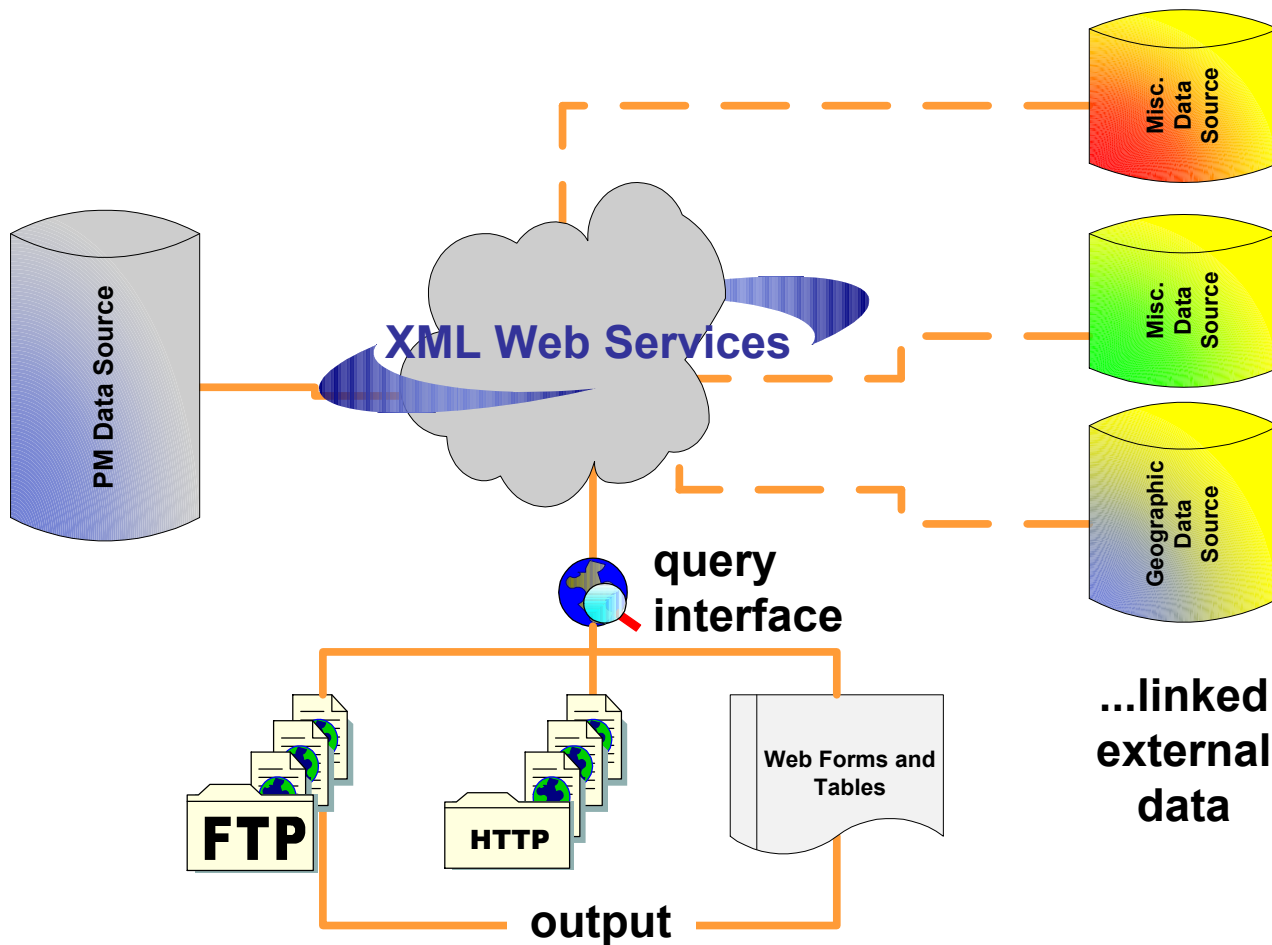
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XML Web Services



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Ad hoc Query Interface

Sample Query System

Select Monitoring Program

Select Monitoring Program

- EPA Air Monitoring
- NETL Monitoring Site (NETL)
- Pittsburg Air Quality Study (PAQS)
- Southern Fine Particulate Monitoring Project (SRI)
- Stubenville Air Quality Study (SCAMP)

Select Site

- 390490081
- 390530002
- 390530003
- 390550004
- 390570006

Select Location

Select State

OHIO

Select County

- ALBANY CO
- ALLEGANY CO
- BRONX CO
- BROOME CO

Select Parameter

Select Parameter

- Nitric Oxide
- Nitrogen Dioxide
- Ozone
- PM 10
- PM 25

Select Time Period

Start Date: 03/01/2001

End Date: 03/11/2001

View GIS Map **View Tabular Results** **Download Offline Dataset**

- Smart Selectors that automatically limit available choices on related controls.
- Quickly Change GIS Queries
- Browse Resulting Dataset
- Immediately Download Offline Datasets



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Geographic Information Systems

- Data Visualization
- Explore Spatial Relationships Between PM Data And Other Geographic Features
- Query PM And Meteorological Data By Geography Or By Spatial Proximity To Other Geographic Features
- Allow Users To Create Their Own Maps



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Monitor Site Visualization

Wheeling Jesuit University





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Primary And Satellite Sites





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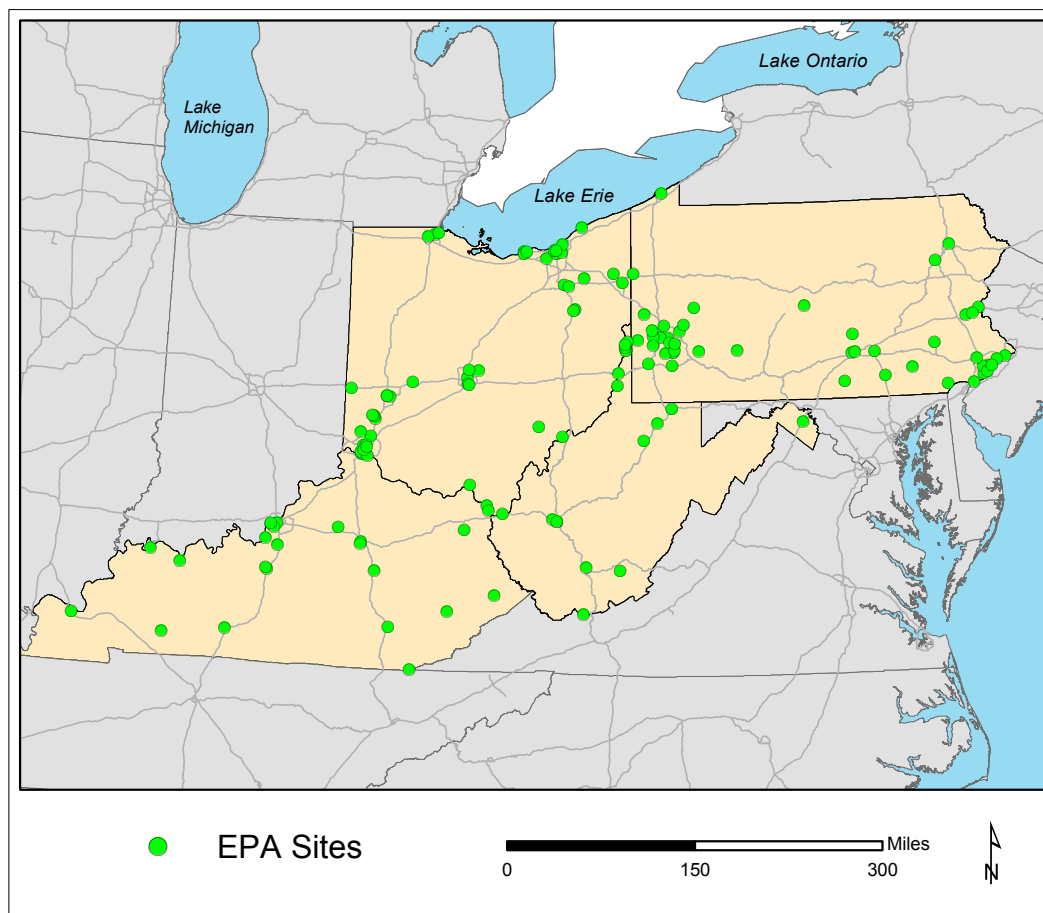
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EPA Sites





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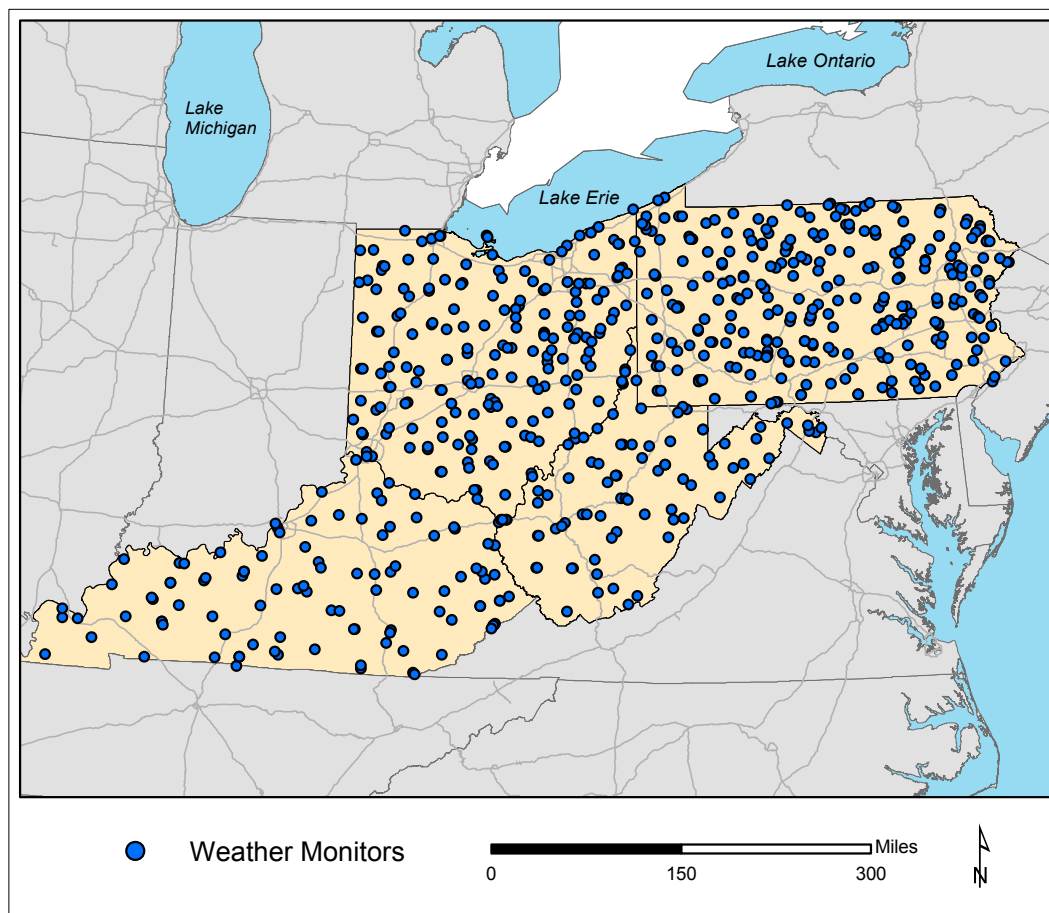
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NCDC Weather Monitoring Sites



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GIS Query Process

Select Monitoring Program

Select Monitoring Program
Steubenville Air Quality Study (SCAMP)

Select Site
Steubenville

Select Location

Select State
OHIO

Select County
Jefferson County

Select Parameter

Select Parameter
Ambient Temperature
Ammonia
Barometric Station Pressure
CMM
Carbon Monoxide

View GIS Map **View Tabular Results** **Download Result**

- 1 • Choose search parameters
- 2 • View GIS Map
- 3 • View Tabular Results
- 4 • Download Results

2

3

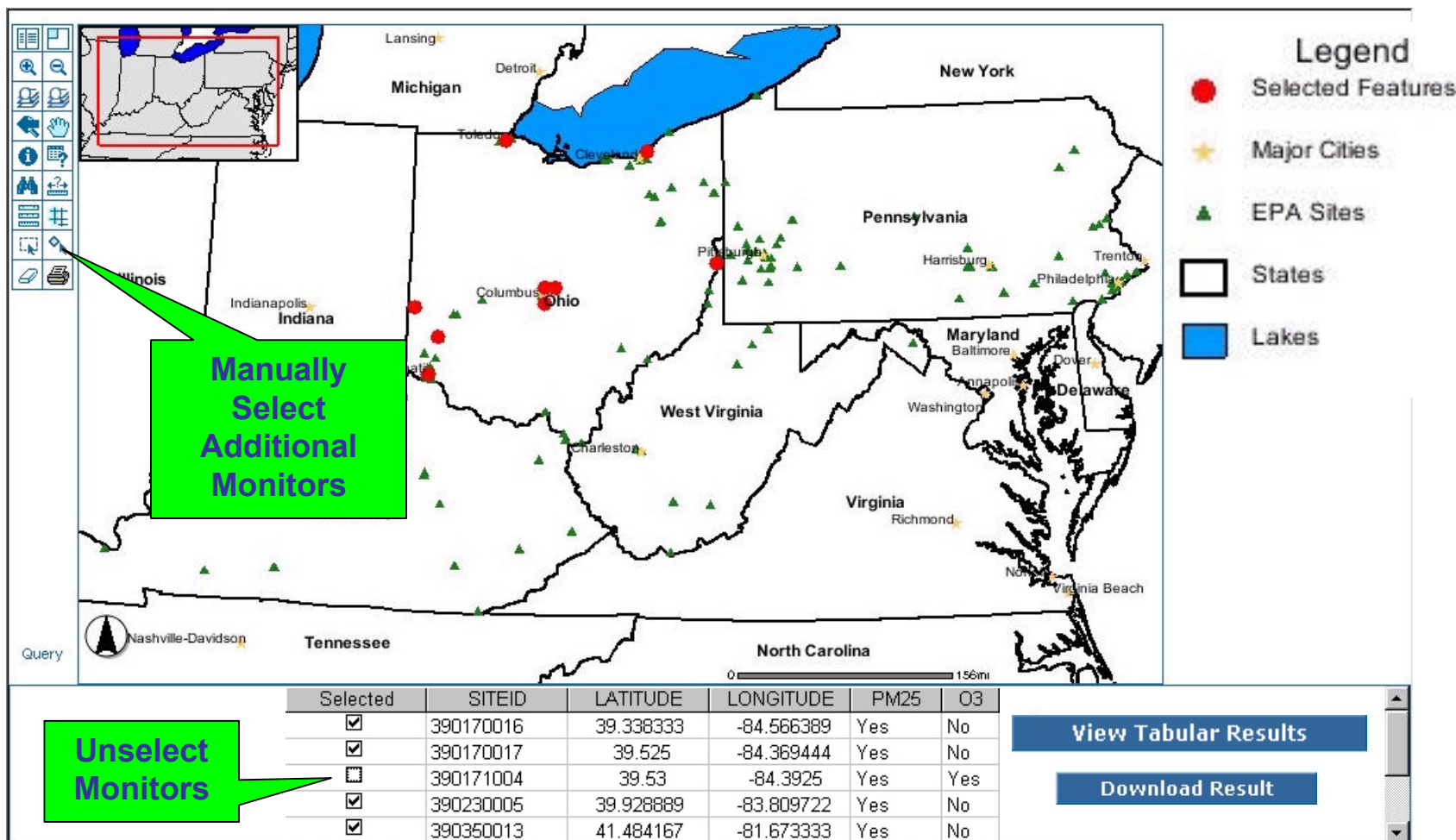
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Manually select additional monitors, or unselect from previous query



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Toolbar Functions

Toggle Legend and Layer List

Zoom In

Zoom To Full Extent

Zoom To Previous Extent

Identify Features

Find Text In Layer Attributes

Set Units

Select Multiple Features by Polygon

Clear Selected Features



Toggle Overview Map

Zoom Out

Zoom To Active Layer

Pan

Opens Query Dialog

Measure Distances

Opens Buffer Dialog

Select Multiple Features by Point

Print





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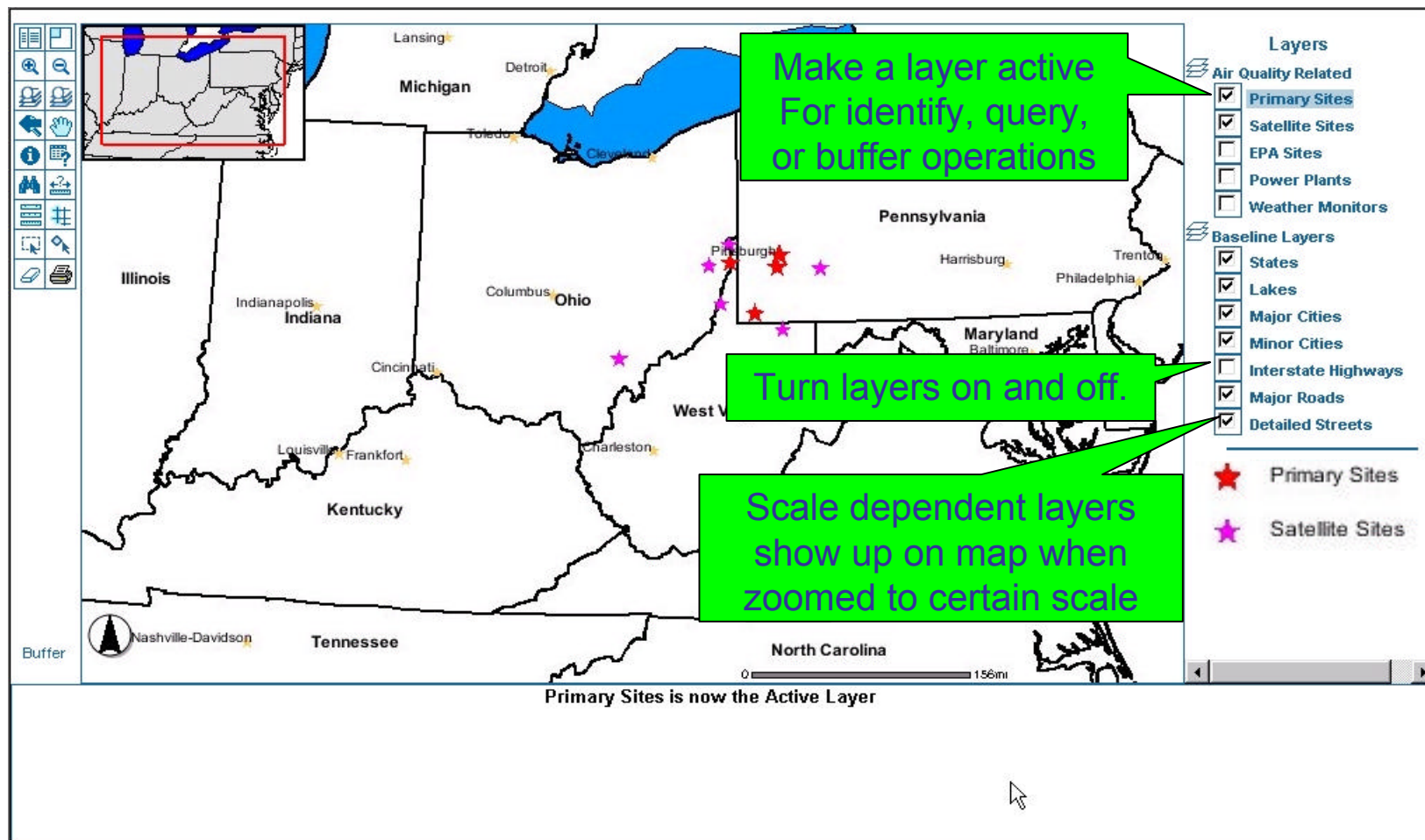
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Working With Layers





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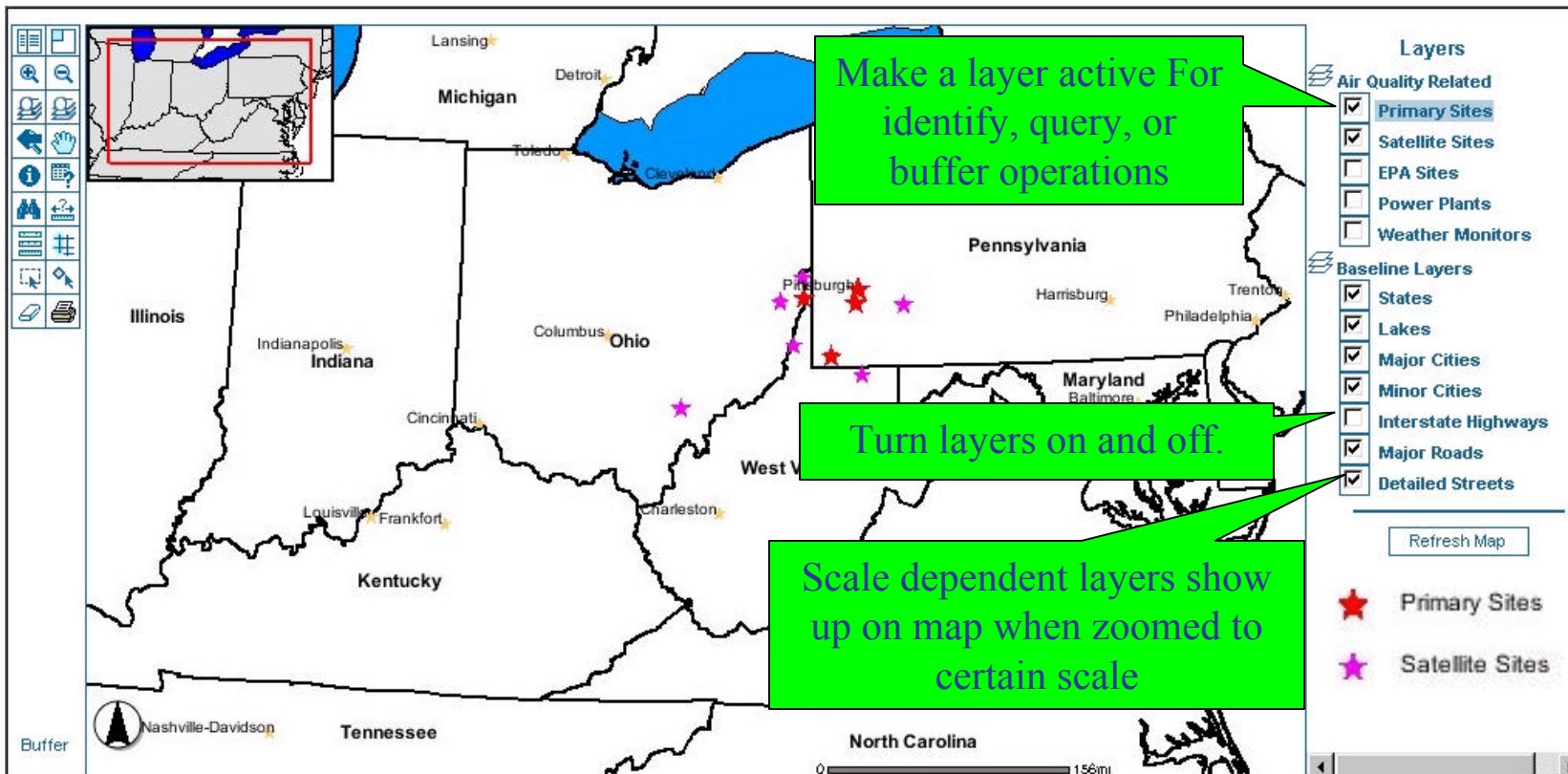
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Identify Features On The Map

Use Identify Tool to click on any feature in the map. Works on the Active layer. Results appear as table below map. Fields within table can be hyperlinked to additional information.

Layers

- Air Quality Related**
 - ☒ Primary Sites
 - ☒ Satellite Sites
 - ☐ EPA Sites
 - ☒ Power Plants
 - ☐ Weather Monitors
- Baseline Layers**
 - ☒ States
 - ☒ Lakes
 - ☒ Major Cities
 - ☒ Minor Cities
 - ☐ Interstate Highways
 - ☒ Major Roads
 - ☒ Detailed Streets

Refresh Map

- Primary Sites
- Satellite Sites
- Power Plants

Power Plants

| ORISPL | NUMBLR | PSTATABB | PNAME | NUMGEN | UTILNAME | UCODE | EPARGN | CNTYNAME | STATNAM | NERC_REG | FIPSS | FIPSCNTY | LAT | LONG | GEN_PHSE | POLYGONID | SCALE | ANGLE | #SHAPE# | #ID |
|--------|--------|----------|-------|--------|--------------------|-------|--------|------------|---------|----------|-------|----------|---------|----------|----------|-----------|-------|-------|---------|-----|
| 2914 | 5 | OH | DOVER | 3 | DOVER CITY OF (OH) | 5336 | 5 | TUSCARAWAS | OHIO | ECAR | 39 | 157 | 40.5164 | -81.4672 | P2 | 0 | 1 | -11 | [point] | 16 |



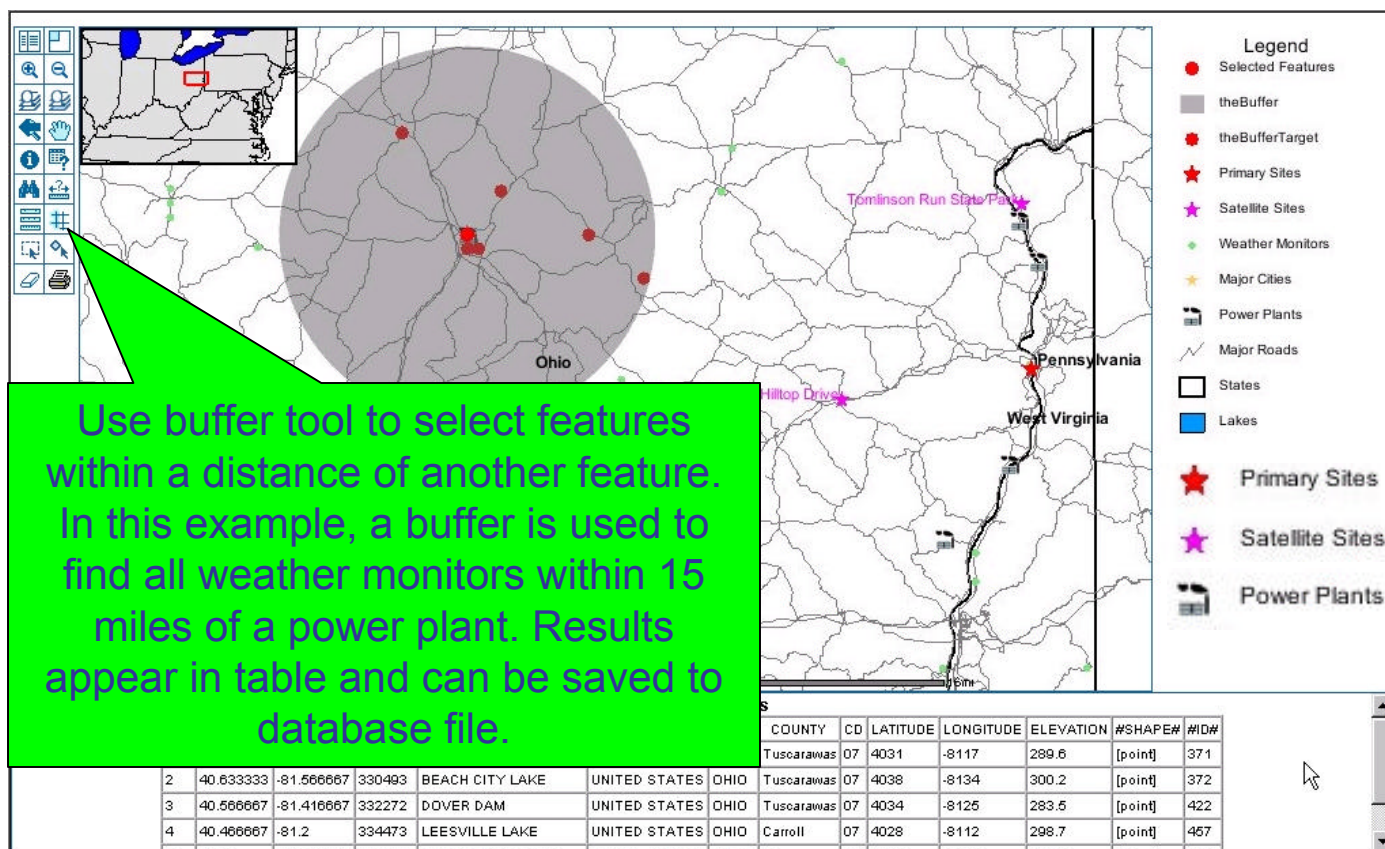
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Use Buffer Tool To Find Features Within A Radius Of Another Feature



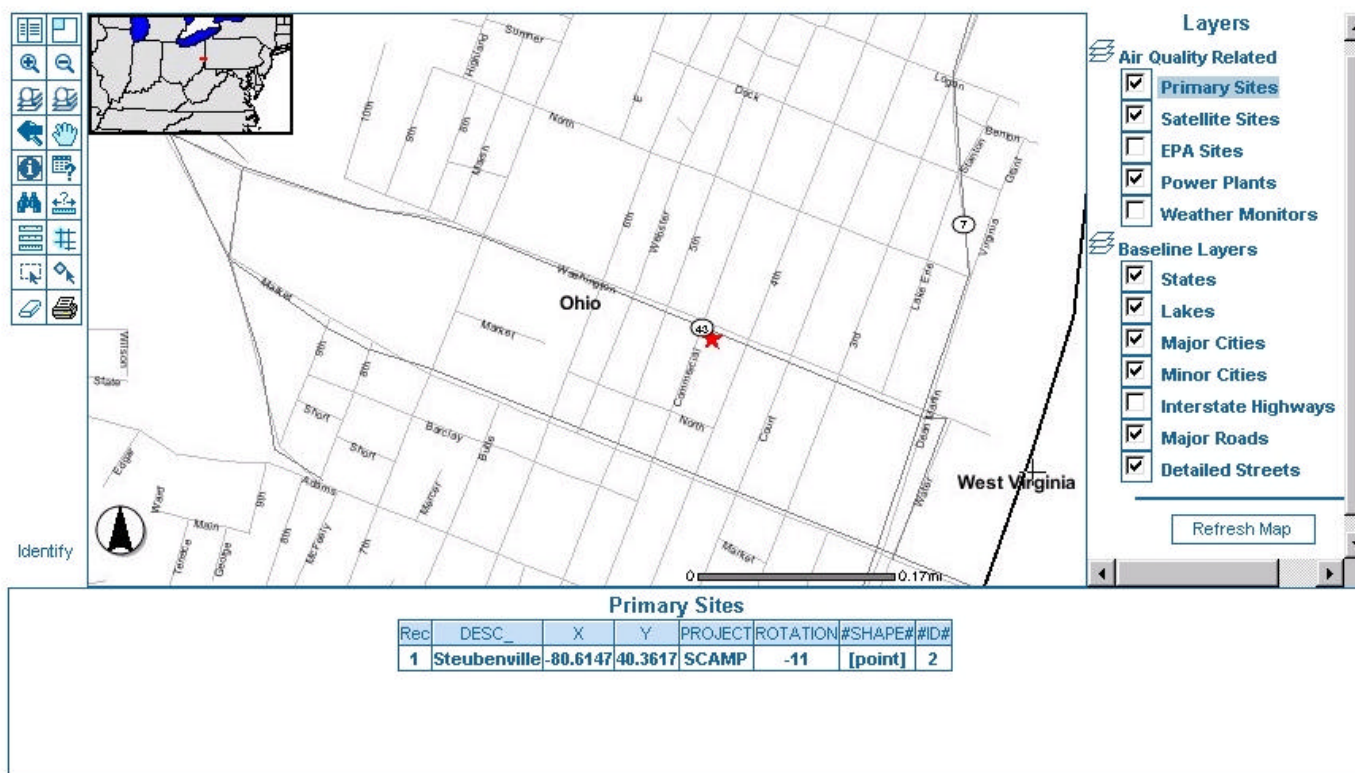
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Sample – Zoomed To A Monitoring Site



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Additional GIS Functionality

- Extract Server – Clips All GIS Layers By View Extent And Places Them In A Single Zip File For Download
- Internet Server – Allows Users To Connect Directly To Map Service Through Internet Within Gis Software (ESRI's ArcGIS Or ESRI's Free ArcExplorer)
- Can Also Be Used In Web Browser With Java Plug In



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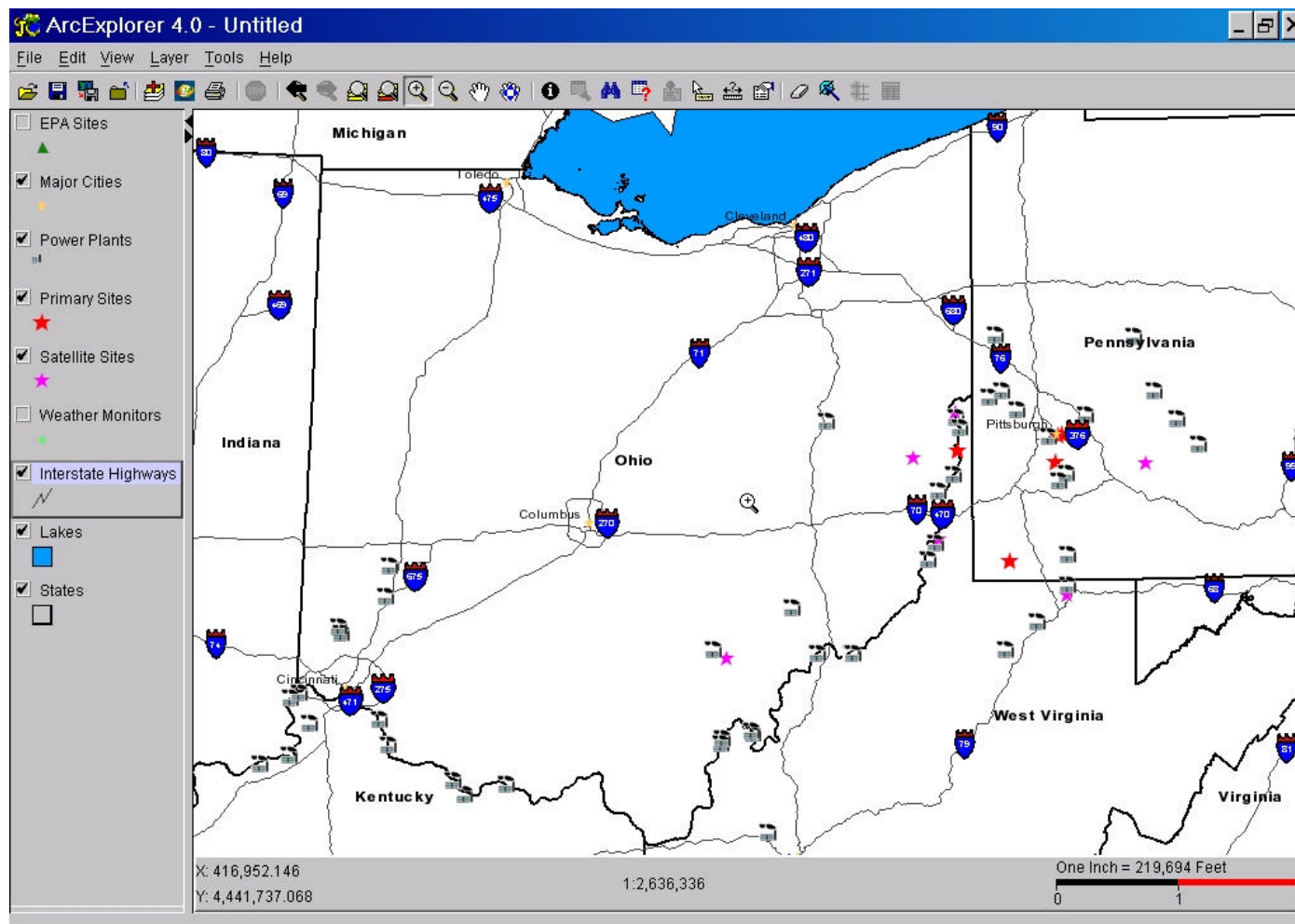
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ArcIMS
service
brought
into free
GIS
software
for further
analysis





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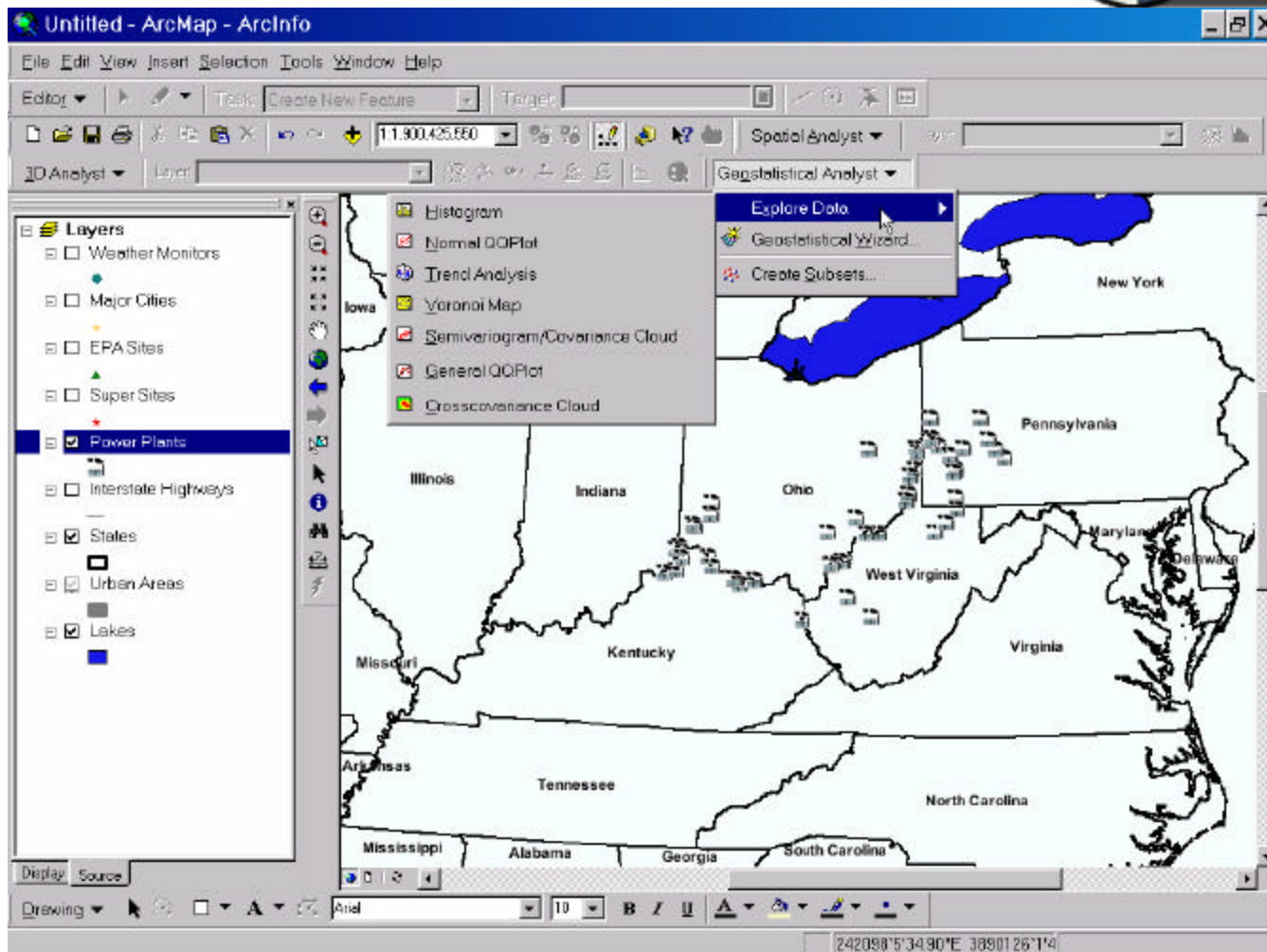
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Tabular Datasets

DataGrid was used from cache. The cache was populated at 3/23/2003 2:52:00 PM

Query: select method_ID from tblMethod where parameter_ID = 43

Select Table

32081 records found

Page 1 of 1605 [Next || Last]

| Observation ID | Site ID | Observation Date | Method | Flag Code | Parameter | Observation Value |
|----------------|---------|-----------------------|--------|-----------|-----------|-------------------|
| 495485 | 9 | 4/19/2001 11:45:00 PM | 7 | 1 | Ammonia | 62.4068946838379 |
| 495613 | 9 | 4/14/2001 11:00:00 PM | 7 | 1 | Ammonia | 16.7850532531738 |
| 495512 | 9 | 4/28/2001 10:00:00 AM | 7 | 1 | Ammonia | 7.37704801559448 |
| 495487 | 9 | 4/29/2001 6:30:00 PM | 7 | 1 | Ammonia | 7.8050856590271 |
| 495493 | 9 | 4/29/2001 3:15:00 AM | 7 | 2 | Ammonia | 22.2610359191895 |
| 495486 | 9 | 4/28/2001 11:00:00 PM | 7 | 1 | Ammonia | 13.8966970443726 |
| 495471 | 9 | 4/29/2001 6:15:00 AM | 7 | 1 | Ammonia | 25.3657283782959 |
| 495492 | 9 | 4/25/2001 7:30:00 AM | 7 | 1 | Ammonia | 16.1818408966064 |
| 495488 | 9 | 4/30/2001 10:30:00 AM | 7 | 2 | Ammonia | 36.709300994873 |
| 495756 | 9 | 4/19/2001 8:45:00 PM | 7 | 1 | Ammonia | 38.5223083496094 |
| 495816 | 9 | 4/20/2001 4:15:00 PM | 7 | 1 | Ammonia | 12.7679748535156 |
| 496640 | 9 | 4/28/2001 12:00:00 AM | 7 | 1 | Ammonia | 7.93058061599731 |
| 496671 | 9 | 4/29/2001 8:45:00 PM | 7 | 1 | Ammonia | 16.1467819213867 |
| 496722 | 9 | 4/24/2001 4:15:00 AM | 7 | 1 | Ammonia | 11.1774597167969 |
| 496639 | 9 | 4/7/2001 12:45:00 PM | 7 | 1 | Ammonia | 12.3545074462891 |
| 496666 | 9 | 4/25/2001 6:15:00 PM | 7 | 1 | Ammonia | 26.1274929046631 |
| 496641 | 9 | 4/17/2001 5:45:00 PM | 7 | 1 | Ammonia | 6.90112161636353 |
| 496046 | 9 | 4/30/2001 9:15:00 AM | 7 | 1 | Ammonia | 48.4222640991211 |
| 496664 | 9 | 4/29/2001 7:15:00 AM | 7 | 1 | Ammonia | 21.8282489776611 |
| 496764 | 9 | 4/16/2001 12:45:00 AM | 7 | 1 | Ammonia | 3.94028949737549 |
| | | | | | | |

Records Per Page 20

Change

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Change Query



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Offline Datasets

- Datasets Can Be Downloaded For Further Use Locally
- Datasets Are Cached At The Server To Reduce Database Resource Demands
- Offline Datasets Are Available In NARSTO, CSV And XML Formats



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QA/QC Systems

- Ensure Data Entering the Database is Same Data Provided By Submitting Authority
- Local and NARSTO Flag Compatibility
- Application Transactional Layer
- Database Transactional Layer

